Name _____

Ions and Element Stability Practice

A. Determine how many electrons an ion of each of the following elements would have. To help you, first figure out how many protons and electrons the neutral atom would have. Then, add or subtract ONE electron depending on the type of ion.

REMEMBER:

- CATIONS have a positive charge
  - Less electrons than protons
- ANIONS have a negative charge
  - More electrons than protons

1. Lithium (Li)
   # of protons _____
   # of electrons _____
   # of e- in CATION _____

2. Fluorine (F)
   # of protons _____
   # of electrons _____
   # of e- in ANION _____

3. Sodium (Na)
   # of protons _____
   # of electrons _____
   # of e- in CATION _____

4. Chlorine (Cl)
   # of protons _____
   # of electrons _____
   # of e- in ANION _____

5. Bromine (Br)
   # of protons _____
   # of electrons _____
   # of e- in ANION _____

6. Potassium (K)
   # of protons _____
   # of electrons _____
   # of e- in CATION _____

7. Cesium (Cs)
   # of protons _____
   # of electrons _____
   # of e- in CATION _____

8. Iodine (I)
   # of protons _____
   # of electrons _____
   # of e- in ANION _____

B. Some of the elements listed below are more stable when they exist as ions. Remember the octet rule! To predict their stability, complete the following steps:

- Start by writing the number of protons and electrons for each element.
- Next, determine how many of those electrons are valence electrons (when the element is neutral).
- Finally, determine whether they are STABLE with that many valence electrons or if they are more likely to become an ion. For those that are more stable as an ion, determine whether that element is more likely to become a CATION or an ANION. (Circle the best answer)

1. Helium (He)
# of protons _____
# of electrons _____
# of valence e- _____

STABLE
CATION
ANION

2. Sodium (Na)
# of protons _____
# of electrons _____
# of valence e- _____

STABLE
CATION
ANION

3. Chlorine (Cl)
# of protons _____
# of electrons _____
# of valence e- _____

STABLE
CATION
ANION

4. Neon (Ne)
# of protons _____
# of electrons _____
# of valence e- _____

STABLE
CATION
ANION

5. Magnesium (Mg)
# of protons _____
# of electrons _____
# of valence e- _____

STABLE
CATION
ANION

6. Lithium (Li)
# of protons _____
# of electrons _____
# of valence e- _____

STABLE
CATION
ANION

7. Fluorine (F)
# of protons _____
# of electrons _____
# of valence e- _____

STABLE
CATION
ANION

8. Beryllium (Be)
# of protons _____
# of electrons _____
# of valence e- _____

STABLE
CATION
ANION

9. Argon (Ar)
# of protons _____
# of electrons _____
# of valence e- _____

STABLE
CATION
ANION